

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA(AM) - SEMESTER– II EXAMINATION – WINTER 2019

Subject Code: 4120503

Date: 16/11/2019

Subject Name: Business Statistics

Time: 02:30PM to 05:30PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Describe the main areas of Business and Industry where statistics are extensively used. **07**

- (b)** Explain the following terms: **07**
1. Histogram
 2. Polygon
 3. Ogive
 4. Pie chart
 5. Stem and leaf display
 6. Primary data
 7. Secondary data

Q.2 (a) The following distribution gives the pattern of overtime work done by 100 employees of a company. Calculate the average overtime work done per employee and use step deviation method. **07**

Overtime hours	10-15	15-20	20-25	25-30	30-35	35-40
Employees	11	20	35	20	8	6

(b) List down advantages and disadvantages of Mean, Median and Mode. **07**

OR

(b) Find : $10p_6$ and $10c_6$ **07**

Q.3 (a) Explain following terms: **07**

1. Random experiment
2. Mutually exclusive events
3. Sample space
4. Complementary events

(b) An MBA applies for a job in two firms X and Y. The probability of his being selected in firm X is 0.7 and being rejected in firm Y is 0.5. The probability of at least one of his application being rejected is 0.6. What is the probability that he will be selected by one of the firms? **07**

OR

Q.3 (a) Properties of expected value and variance. **07**

(b) A market researcher at a major automobile company classified house-holds by car ownership. The relative frequencies of household for each category of ownership are shown below: **07**

No. of car per households	P(x)
0	0.10
1	0.30
2	0.40
3	0.12
4	0.06
5	0.02

Calculate expected value and standard deviation of the random variable.

- Q.4 (a)** Calculate quartile deviation and coefficient of quartile deviation. **07**

Farm size (acre)	No. of farms
Below 40	394
41-80	461
81-120	391
121-160	334
161-200	169
201-240	113
241 and above	148

- (b)** A survey was conducted to determine the age of 120 automobiles of such a survey is as follow: **07**

Age of auto	0-4	4-8	8-12	12-16	16-20
No. of autos	13	29	48	22	8

What is the median age for the autos?

OR

- Q.4 (a)** A study of 100 engineering companies gives the following information calculate standard deviation of the profit earned. **07**

Profit (in lakhs)	0-10	10-20	20-30	30-40	40-50	50-60
No. of companies	8	12	20	30	20	10

- (b)** Write a note: Scatter diagram method **07**

- Q.5 (a)** Calculate co-relation coefficient. **07**

x	43	21	25	42	57	59
y	99	65	79	75	87	81

- (b)** Write note: Probability sampling method. **07**

OR

- Q.5 (a)** 1000 lights bulbs with a mean life of 120 days are installed in a new factory and their length of life is normally distributed with S.D. of 20 days. How many bulbs will expire in less than 90 days? **07**

- (b)** Write note: Non probability sampling method. **07**
